STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

February 9, 2022

VIA E-MAIL and U.S. MAIL

Mr. Jim Saric
Remedial Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3511

Dear Mr. Jim Saric:

SUBJECT: Michigan Department of Environment, Great Lakes, and Energy (EGLE) Comments on the 100-Percent Sediment Remedial Design (100RD) - Remedial Reach, Kalamazoo River Area 1, Operable Unit 5 (OU5) Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site (Site) dated December 17, 2021.

Enclosed are EGLE's detailed comments on the draft subject 100RD – Remedial Reach. EGLE's comments were developed after reviewing the subject documents, formal comment letters provided by EGLE to the United States Environmental Protection Agency (US EPA) and associated comment letters provided by the US EPA to Georgia-Pacific (GP) and International Paper (IP) as part of the remedial design (RD) process, presentations developed for Technical Work Group meetings, and the Area 1 Supplemental Remedial Investigation (SRI) and Feasibility Study (FS) Reports. EGLE also considered the quality, completeness, and lessons learned from the sediment remedial design and remedial action (RD/RA) for the Area 1 Crown Vantage Side Channel (CVSC). A summary of the Area 1 RD for the selected sediment remedy is provided below, and some over-arching comments are provided thereafter.

Area 1 of OU5 includes 22-miles of the Kalamazoo River and a 3-mile stretch of Portage Creek beginning at Alcott Street and extending to the confluence of the Kalamazoo River. The 22-miles of the Kalamazoo River was divided into eight (8) river Sections beginning at Morrow dam (Section 1) and ending at the former Plainwell dam (Section 8).

The components of the selected sediment and floodplain remedy for Area 1 are detailed in the 2015 Area 1 Record of Decision (ROD) authored by the US EPA. GP and IP are respondents to a Unilateral Administrative Order (UAO) (Docket No: V- W-17-C-002) for remedial design and remedial action for Area 1 of OU5. The UAO requires implementation of the Area 1 ROD (Appendix A) and the procedures and requirements for implementing the work are outlined in the Statement of Work (SOW) (Appendix B) that is included as an attachment to the UAO. The subject documents were submitted by the Respondents per the requirements of Section 3 of the SOW

and they provided final details on the design and implementation of the sediment remedy for a select portion of Area 1 referred to as the Remedial Reach.

The Remedial Reach is approximately 3.0-miles in length, begins near the city of Kalamazoo and ends in Cooper Township, and includes the downstream portion of Section 2, all of Section 3, and the upstream portion of Section 4. The Remedial Reach has unique geomorphic characteristics (i.e., shallow bed slopes) and is located immediately downstream of several former papermill properties and unlicensed landfills that were utilized by the paper companies for disposal of contaminated waste. Source control and risk reduction measures have been implemented or are ongoing at all the historic mill properties and landfills that have been identified as OUs for the Site. Due to the proximity to the source areas and unique geomorphic conditions in the Remedial Reach, this has resulted in pervasive polychlorinated biphenyl (PCB) contamination that generally extends from bank-to-bank throughout the majority of the Remedial Reach. In the SRI Report, GP estimated more than 60 percent of the total PCB mass in Area 1 was confined to the Remedial Reach. Pre- and post-ROD sampling conducted within the Remedial Reach identified several 'hot spot' locations where extraordinarily thick and highly contaminated PCB waste has accumulated. Post-ROD sampling showed total PCB concentrations as high as 773 parts-per-million (ppm) in one of the 'hot spots' (KRT- 5/FF-19). The Area 1 ROD states that the remedial goals for smallmouth bass will be met within 32 years after ROD issuance and requires the removal of at least five (5) 'hot spots' in the Remedial Reach identified as KPT-19, KPT-20, KRT-4, KRT- 5/FF- 19, and SIM-1, and the CVSC 'hot spot' about 1.5-miles downstream of the Remedial Reach in Section 4.

Following completion of the RD/RA pre-design investigation (PDI) as described in the PDI Evaluation Report Parts 1 & 2, the PDI sampling in 2017 'eliminated' KPT-20 as a 'hot spot' but the PDI sampling identified Verburg Park Pond as a 'hot spot'. At the 30 percent Design phase, the US EPA approved a request from the Respondents to splinter the RD/RA for the sediment remedy into three individual components based on location. The RD and RA for the Crown Vantage Side Channel 'hot spot' were completed in 2020 and 2021, respectively. The 95 percent Sediment Remedial Design (95RD) – Remedial Reach, which included design details for 'hot spots' KRT-4, KRT-5/FF-19 and SIM-1 was submitted in August 2021, followed by an Addendum that was submitted in October 2021 for Bedform 118, which is an additional 'hot spot' located upstream of the Verburg Park Pond outlet that was identified during PDI and added to the scope of the RD/RA by the US EPA during development of the 95RD – Remedial Reach. EGLE provided a cover letter and detailed comments on the 95RD – Remedial Reach and Addendum to the US EPA on October 27, 2021. The subject 100RD – Remedial Reach provides final remedial design details for the five 'hot spots' described in the 95RD – Remedial Reach and associated Addendum. The sediment remedy design for the furthest upstream 'hot spot' in the Remedial Reach, KPT- 19, is not included in the 100RD – Remedial Reach. EGLE expects to receive a standalone design for KPT-19 soon.

While the Respondents did incorporate or address some of the comments provided on the 95RD – Remedial Reach and Addendum, it is worth noting that more than half of the detailed comments (16 out of 26) EGLE is providing to the US EPA on the subject 100RD – Remedial Reach were provided by the US EPA to the Respondents at the

pre-final stage. EGLE's detailed comments on the subject document are included as an enclosure and a few over-arching comments are provided below.

1. 'Hot spot' boundaries in multiple locations have limited data defining the Thiessen polygon dredge area boundaries. Some of these areas have adjacent design cores with high concentrations that are omitted from the hotspot while other locations with no clean sample data, shown that would define the remedial action boundaries that are drawn. These areas appear to depict a loose interpretation of Thiessen polygon delineation along with manual manipulation of dredge areas without sufficient data. Analytical data to support the proposed remedial action boundary needs to be provided and, if no data exists to support the proposed edge of the boundary, the polygon boundary and proposed remedial footprint should be extended to cover currently omitted areas or they should be added to the confirmation sampling program. EGLE continues to have concern over the use of general terms, such as 'hot spot', that have not been clearly defined by technical terminology or criterion. Without a clear set of rules to define how the 'hot spot' boundaries are drawn, the decision to include or not include locations in the 'hot spot' boundary seems arbitrary. If future remedial actions at OU5 recycle general terms from the Area 1 RD/RA (e.g., 'hot spot') to drive remedial decision making then technical work groups should collectively and cooperatively agree upon technical definitions and criterion, as appropriate.

2. The RD/RA PDI sampling completed in the Remedial Reach included sampling conducted under several work plans, each with unique objectives and sample strategies. In some cases, cores were collected to pre-determined depths instead of refusal and in others only a portion of the entire core was submitted for analysis. As a result, and despite multiple rounds of sampling, many of the locations remain vertically undefined and the delineation is rudimentary. Additionally, since the time the PDI sampling was initiated, a significant low bias in the Respondents total PCB analytical data was identified and since that time corrective actions have been implemented by the Respondents lab. Plots highlighting the low analytical bias in samples analyzed prior to and following laboratory corrective were submitted as part of EGLE's comments on the 95RD – Remedial Reach and Addendum. Although the corrective actions made to the Respondents laboratory Standard Operating Procedures (SOP) improved the accuracy of the data, it appears that the Respondents analytical data is still under reporting the total PCB concentration. Since the total PCB concentration of the material in confirmation samples will likely be higher than the measurement reported by the Respondents lab, EGLE will not support the use of alternate, higher criterion to close dredge management units (DMUs) without additional reasoning and documentation that justifies ceasing dredge operations.

3. EGLE and the US EPA requested changes to the confirmation sampling program in comments provided on the 95RD – Remedial Reach and Addendum but those requested changes were not incorporated into the subject document.

Those changes are provided below and must be incorporated for EGLE to ultimately support the proposed dredge program.

a. Confirmation cores shall be advanced using methods adequate to penetrate the entirety of the soft sediment layer and not to a pre-determined depth as proposed. If the confirmation sample fails or visually suspect material is present below the confirmation interval, all available sediment will be released for analysis.

b. Following analysis of sediment samples, subsequent dredge passes shall be designed to achieve a surface of <1 ppm total PCBs and arbitrary cuts will not be applied.

EGLE agrees that by minimizing dredge passes and incorporating industry-standard best management practices the likelihood of releasing “dredged residuals”, which can negatively impact remedy performance, can be reduced. However, EGLE is concerned that the lack of complete delineation and inadequate confirmation sampling program will result in undredged inventory being left behind despite three dredge passes being completed, which is what occurred at the CVSC. EGLE would not support using the third dredge pass as an “offramp” and excuse to leave undredged inventory behind, which would be likely to happen if the proposed approach is adopted.

4. The confirmation sample program must be sufficient to demonstrate that PCB contamination has been removed to acceptable thresholds. The 100RD – Remedial Reach proposes subdividing each DMU into five subareas, which generally ranges from 5,000 to 10,000 square feet (ft2). One aliquot from each subarea would be collected and composited to characterize the DMU. This is inconsistent with previous actions at the Site and may not be sufficient to ensure that the remedial action is complete, especially when considering the sample density and strategy used to delineate the horizontal and vertical dredge extents. Cost estimates provided in the Area 1 ROD for the sediment remedy were taken from the Area 1 FS – Appendix H, and they include labor, materials, and laboratory analytical costs necessary to collect and analyze sediment samples. Appendix H states, “Consistent with the [Time Critical Removal Actions] TCRAs, cost assumes sampling frequency of one per 500 ft2 of removal area”.

Given the order of magnitude difference in decision unit scaling that occurred between the FS and RD, and considering the data density and methods used for delineation, EGLE believes that the technical work group should have discussions on how to best apply the confirmation sample program so that ultimately all parties have a high degree of confidence the goals and objectives of the Area 1 RA have been met.

5. The 100RD – Remedial Reach proposes using turbidity as the sole monitoring metric. However, the cost estimates provided in the Area 1 ROD for

the sediment remedy were taken from the Area 1 FS – Appendix H and include real-time turbidity monitoring at three locations (one upstream and two downstream) and water column sampling would consist for total suspended solids and PCBs at the three locations weekly.

Given that the cost estimates for the sediment remedy in the Area 1 FS and ROD included turbidity and contaminant monitoring, and considering the volume, depth, and high PCB contamination levels present in areas that are proposed for remediation in the 100RD – Remedial Reach, a contaminant monitoring plan consistent with the Area 1 FS and a dredge management document that details the Best Management Practices (BMPs) that will be utilized for the proposed operations should be developed and submitted during the RA. Prior to initiation of the RA and regardless of dredging method, a meeting/webinar will be conducted with all parties, including the dredging contractor, to ensure that standard environmental dredging practices and appropriate BMPs are discussed, and subsequently and consistently implemented

6. The method for calculating current condition surface-area weighted average concentration (SWAC) is reasonable. However, the post remedial SWAC predictions assume the areas not included for remediation have concentrations uniformly below action limits when some percentage of these areas undoubtedly exceed 1 ppm of total PCBs. Failure to account for this in the SWAC estimation causes the predicted values to be biased low. In addition, the uncertainty in the estimates is also understated. Combined, the SWAC estimate is biased low, and the confidence interval is too narrow to capture the full uncertainty in the SWAC estimates. Due to these biases, we can anticipate actual post remedial SWACs to be substantively higher than predicted, exceeding the calculated UCLs with more than the intended 5 percent probability (95% confidence) and consequently negatively impacting the long-term recovery of the river. Revise post remedial SWAC predictions accordingly.

7. The Respondents and their contractors should continue to engage with the appropriate staff from EGLE and the Michigan Department of Natural Resources (MDNR) well ahead of the planned RA to ensure that the planned actions will meet the substantive requirements of the state permitting process. At a minimum, this will require coordination with EGLE Water Resources Division and MDNR Fisheries Division.

EGLE appreciates the opportunity to review and comment on the subject draft document for the Remedial Reach.

If you have any questions, please contact Mr. Daniel Peabody, Environmental Quality Analyst, Remediation and Redevelopment Division at 517-285-3924; PeabodyD@Michigan.gov; or EGLE, P.O, Box 30426, Lansing, Michigan 48909-7926

Sincerely,

Daniel Peabody
Environmental Quality Analyst
Superfund Section
Remediation and Redevelopment Division

cc: Ms. Megen Miller, Michigan Department of Attorney General
Mr. Matt Diana, MDNR
Mr. Jay Wesley, MDNR
Mr. Kyle Alexander, EGLE
Mr. Luke Trumble, EGLE
Dr. Keegan Roberts, CDM Smith
Mr. David Kline, EGLE
Mr. Derek Haroldson, EGLE
Mr. Joe Walczak, EGLE
Dr. Lisa Williams, US Fish and Wildlife Service

Allied Paper Inc./Portage Creek/Kalamazoo River Superfund Site

100% Sediment Remedial Design – Remedial Reach

Kalamazoo River Area 1
December 17, 2021

GENERAL COMMENTS

Commenting Organization: EGLE

General Comment #1: Hot spot boundaries in multiple locations have limited data defining the Thiessen polygon dredge area boundaries. Some of these areas have adjacent design cores with high concentrations that are omitted from the hotspot while other locations have no clean sample data defining the remedial action boundaries. These areas depict a loose interpretation of Thiessen polygon delineation along with manual manipulation of dredge areas without sufficient data and must be sufficiently explained, revised, or incorporated into a confirmation sampling scheme. The areas in question include the following:

a. **KRT5 A1-SED-107:** The eastern extent of the dredge boundary is currently defined by 2 locations, one with concentrations between 11-23 ppm (A1-KRT5/FF19-T207B) and second location with concentrations between 2.5-5 ppm (A1-KRT5/FF19-T208B). At this boundary there is no core data indicating why a choice was made to end the dredge area and modify the Thiessen polygon. The adjacent core A1-SED-107 (5-11ppm) provides a data point indicating that the region between all 3 samples (and including A1-SED-107) should be included in the dredge area. A second data point indicating that the region between these samples is likely to be contaminated is core A1-KRT5/FF19-T210D (greater than 50ppm) which is located halfway between each sample across the river and not delineated upstream, the area discussed in this comment. The area east of cores A1-KRT5/FF19-T207B and A1-KRT5/FF19-T208B to A1-SED-107 should be included as a dredge area or additional sampling data should be provided to address this inconsistency.

b. **Area East of A1-KRT5/FF19-T205C**: This core location is displayed as the boundary of the dredge area towards the east. However, there are no analytical sampling data provided that indicate that this boundary is correct or consistent with the design approach. The region directly east adjacent to A1-KRT5/FF19-T205C to the river boundary should be included as a dredge area or additional sampling data should be provided to address this inconsistency.

c. **East of A1-KRT5/FF19-T201C and A1-KRT5/FF19-T304C**: Two sediment cores with concentrations between 11 and 23 are displayed as the boundary of the KRT5 dredge area. However, there are no analytical sample data provided that indicates that this boundary is correct or consistent with the design approach. The region directly east adjacent to A1-KRT5/FF19-T201C and A1-KRT5/FF19-T304C to the river boundary should be included as a dredge area or additional sampling data should be provided to address this inconsistency.

d. **Area East of A1-KRT4-T204C, A1-SED-023 and A1-KRT4-T206C:** Three cores are provided as Thiessen polygons (A1-KRT4-T204C, A1-SED-023 and A1-KRT4-T206C) and one sample A1-SED-112 with concentrations under 1 ppm within the dredge area. However, there are no analytical sampling data provided that indicate that this boundary is correct or consistent with the design approach. The region directly east adjacent to A1-KRT4-T204C, A1-SED-023 and A1-KRT4-T206C to the river boundary should be included as a dredge area or additional sampling data should be provided to address this inconsistency.

Commenting Organization: EGLE

General Comment #2: The proposed plan for the Area 1 remedial action involves the use of mechanical dredging equipment. Considering recent events during the Crown Vantage Side Channel removal action where removal operations were observed as being inconsistent with standard environmental dredging practices and a lack of implementation of BMPs, hydraulic dredging should be considered to limit operator error. However, in section 7.3.5 mechanical dredging is selected without addressing water quality concerns during dredging. EGLE recommends active oversight from EPA or other state agencies during construction along with implementation of BMPs as prescribed in section 7.3.7. Furthermore, EGLE requests that regardless of dredging method, a meeting/webinar be conducted with all parties, including the dredging contractor, to ensure that standard environmental dredging practices and appropriate BMPs are discussed, and subsequently and consistently implemented.

SPECIFIC COMMENTS

Commenting Organization: EGLE
Section: 3.2.3 **Page #: 3-5 through 3-7** **Lines #:**
Specific Comment #1: As with any project within the FEMA regulated floodway, compliance with FEMA regulations and Executive Orders for Floodplain Management (Executive Orders 11988 and 13690) is required. From the summary of HEC-RAS modeling results provided in Section 3.2.3 and Appendix D Section 5.0, it is unclear if these federal regulations are being met. Clarify whether the HEC-RAS model matches the FEMA Flood Insurance Study water-surface profile within 0.5 foot at the upstream and downstream ends of the reach, in compliance with Paragraph 65.6(a)(2) of the NFIP regulations. It should then be verified that the post-project conditions will result in no increase in flood stage which FEMA defines as nothing greater than 0.00 feet. This does not appear to be the case based on the information provided in Appendix D, and compliance with FEMA's no-rise requirements has not been adequately demonstrated. The revisions to Section 3.2.3 attempt to explain away the 0.01 ft rise instead of addressing this by modifying the remedial design or considering a letter of map revision to be provided to FEMA. As additional remedial actions are implemented within the Kalamazoo River Superfund Site, such increases in water surface elevations can lead to compounding effects with much greater impacts to the floodway.

Commenting Organization: EGLE
Section: Table 4-1 **Page #:** **Lines #:**
Specific Comment #2: Table 4-1 includes a summary of the total sediment removal volume for each hot spot and the volume of sediment less than and greater than 50-ppm. However, there is not enough information in the 100% Remedial Design to confirm the calculated volumes and evaluate the criterion used to draw the proposed dredge prisms for each hot spot. Remove Table 4-1 since there is not enough information in the 100% Remedial Design to evaluate the calculated area or volume of each hot spot. Update the text to include a description of how the area and depth (volume) of each dredge prism was calculated (i.e., what remedial action level was used) and provide figures that clearly show the dredge prisms and all available analytical data.

Commenting Organization: EGLE
Section: 5.1 **Page #: 5-1** **Lines #:**
Specific Comment #3: Revise the text to include a summary of the site features identified in Appendix C that are not currently shown in Tables 5-1 or 5-2, such as driveways, power poles, etc.

Commenting Organization: EGLE
Section: 6.0 **Page #:** **Lines #:**
Specific Comment #4: The method for calculating current condition SWAC is reasonable. The average and UCL based on area weighted average of bedform averages is a better approach for this calculation as opposed to the usual Thiessen Polygon interpolation method. Conversely, the post remedial SWAC predictions are biased low because the areas not included for remediation are assumed to have concentrations uniformly below action limits when based on previous experience at the site it is known that some percentage of these areas undoubtedly exceed 1 ppm. Failure to account for this in the SWAC estimation causes the predicted values to be biased low. In addition, the uncertainty in the estimates is also understated. Combined, the SWAC estimate is biased low, and the confidence interval is too narrow to capture the full uncertainty in the SWAC estimates. Due to these biases, we can anticipate actual post remedial SWACs to be substantively higher than predicted, exceeding the calculated UCLs with more than the intended 5% probability (95% confidence) and consequently negatively impacting the long-term recovery of the river. Revise post remedial SWAC predictions accordingly.

Commenting Organization: EGLE
Section: 6.0 **Page #:** **Lines #:**
Specific Comment #5: The PCB deposit delineations are rudimentary, failing to incorporate spatial relationships in sediment deposits which could be included with more sophisticated delineation methods commonly applied at large Superfund sites nationally. This may be acceptable if confirmation sampling is rigorously applied with an expectation of substantial numbers of areas subject to multiple dredging passes to correctly identify the depth of contamination. EGLE requests continued discussions on how to best apply the confirmation sampling program to address this, as well as revisions to delineation methods going forward.

Commenting Organization: EGLE
Section: 6.0 **Page #: 6 - 2** **Lines #: 15–17**
Specific Comment #6: Revise Section 6 to discuss the rationale for excluding the effects of the Morrow Lake sediment from SWAC calculations. The text acknowledges that excluding the effects of Morrow Lake sediment may influence the post-remedial SWAC and achievement of the SWAC goal, so it is unclear why estimates including these effects are not provided to quantify the potential impacts to achievement of the sediment FRG.

Commenting Organization: EGLE
Section: 6.1 **Page #: 6 - 2** **Lines #: 20–22**
Specific Comment #7: Some historical cores with concentrations greater than 1 mg/kg were excluded based on more recent surrounding PDI results. This approach does not appropriately account for the differences in the historical and PDI datasets. To determine temporal trends and appropriately consider the replacement of historical data, the data replacement evaluation needs to be conducted by looking at paired samples within proximity of each other while also taking into

consideration the different contaminant fate and transport mechanisms that support the exclusion of historical data, for example, erosion at the location of a historical sample. EGLE requests continued discussions on how to best incorporate historical data for future dredging operations. Unless the sediments from which historical samples were taken can be proven to have mobilized, historical data should be used in dredge prism design in addition to the other data sets. The recalcitrant nature of PCBs strongly suggests that the "historical" sampled contaminants are still present, sans erosion.

Commenting Organization: EGLE
Section: 7.1.1 **Page #: 7 - 1** **Lines #: 9**
Specific Comment #8: An updated Operation, Maintenance, and Monitoring (OM&M) Plan needs to be included with the RAWP. Section 10 indicates that an updated OM&M plan will be updated and implemented after completion of sediment remediation in the Remedial Reach. However, an updated OM&M plan will provide the contractor with the OM&M requirements based on the final design rather than relying on the 2017 OM&M Plan which may not incorporate all aspects of the final design.

Commenting Organization: EGLE
Section: 7.3.2 **Page #: 7 - 6** **Lines #: 11–15**
Specific Comment #9: This section should provide context to the calculated post remedy SWAC by providing the exact SWAC values (along with the area over which the SWAC was calculated) before and after with the exclusion of these offsets. Additionally, the uncertainty associated with the underlying assumptions of the SWAC calculations should be quantified and discussed (e.g., a.) comment regarding areas not included for remediation are assumed to have concentrations uniformly below action limits when based on previous experience at the site it is known that some percentage of these areas undoubtedly exceed 1 ppm, b.) comment regarding some historical cores with concentrations greater than 1 mg/kg being excluded based on more recent surrounding PDI results, c.) comment regarding excluding the effects of the Morrow Lake sediment from SWAC calculations, etc.).

Commenting Organization: EGLE
Section: 7.3.7 **Page #: 7 - 1 5** **Lines #: 1-6**
Specific Comment #10: This section discusses BMPs to be implemented during construction. Add a reference to the required use of RTK systems and software such as DREDGEPACK as indicated in section 7.3.7.

Commenting Organization: EGLE
Section: 7.3.7 **Page #: 7 - 1 6** **Lines #: 12-13**
Specific Comment #11: Turbidity curtains are most suited for containing contamination associated with particulate matter. Explain why monitoring of dissolved contaminant transport outside turbidity curtains is not being conducted, especially during dredging of TSCA material.

Commenting Organization: EGLE
Section: 7.4 **Page #: 7 - 1 7** **Lines #: 22-25**
Specific Comment #13: This section should restate how areas with high subgrade will be delineated. As discussed in section 7.3.5 "*the Contractor will delineate the refusal area via poling and*

coring surveys to map its size and configuration. The refusal area map will then be reviewed for approval by the Respondents' Representative and the USEPA (or its on-site representative)."

Commenting Organization: EGLE
Section: 7.8.1 Page #: Figure 7-4 Lines #: N/A
Specific Comment #14: Backfill in areas with a post-dredge SWAC greater than 1 ppm need to comply with design and ARAR requirements for caps. Cap design evaluations to determine the appropriate thickness of backfill (and potential amendment requirements) for achievement of RAOs under a range of potential site groundwater upwelling velocities need to be provided, as well as long-term monitoring requirements for capped areas. Additionally, the Appendix C evaluations for armor stone sizing need to consider impacts due to propeller wash and wind/vessel generated waves. All other cap design requirements required by the Area 1 ROD should be taken into consideration for design of backfill.

Commenting Organization: EGLE
Section: 7.8.4 Page #: 7 - 2 4 Lines #: 15-17
Specific Comment #15: Provide the basis for the 2H:1V slope recommended for topsoil placement associated with coir fabric restoration.

Commenting Organization: EGLE
Section: 7 Page #: Figure 7-4 Lines #: Boxes 4 and 5 **Specific Comment #16:** In Box 4, post-dredge cores should be driven to hardpan/refusal so that additional sampling is not required to design re-dredge passes to address missed inventory deeper than 3-ft. Furthermore, if a surface confirmation core fails per Box 6, all underlying sediment core intervals will be analyzed at once (not progressively) during Box 5, the dredge prism redesigned per Box 9, and all PCB impacted sediments above 1 ppm total PCB (tPCB) removed per Box 1. As evidenced by recent Area 4 TCRA sampling and the Crown Vantage removal, discrete layers of contamination are likely present in the sediment substrate and should be removed from the river when found.

Commenting Organization: EGLE
Section: 7 Page #: Figure 7-4 Lines #: Box 7
Specific Comment #18: The number of re-dredge passes should not be limited to 3 passes, and re-dredging should occur to address all missed inventory (see also EGLE comment regarding advancing confirmation cores to alluvium and analyzing all depth intervals if the surficial confirmation samples fail). This figure is not consistent with Section 7.4 which does not state that after 3 dredge passes regardless of the remaining concentrations dredging would stop. Figure 7-4 must be revised. Delete "3rd dredge pass performed, or" from Box 7 so that box 7 only states hardpan/ refusal reached". Leaving known contamination in place is not acceptable to the agencies, regardless of the number of dredge passes. The confirmation sampling program is designed to acknowledge residuals, so failing confirmation cores are indicative of either flaws in design (e.g., missed inventory) or dredge execution.

Commenting Organization: EGLE

Section: Figure 7-4 **Page #: Figure 7-4** **Lines #: Notes * and ****
Specific Comment #20: Edit notes at the bottom of the page related to the asterisks. As per discussions with EPA, backfill should be noted to have a total organic carbon content similar to or greater than the native river sediments.

Commenting Organization: EGLE
Section: 8.2.2 **Page #: 8 - 2** **Lines #: 1-5**
Specific Comment #22: Expand this section to discuss procedures for odor monitoring that will be relied upon for making decisions related to odor suppression. Presumably, incidental odor observations will not be the only type of monitoring that triggers mitigation measures.

Commenting Organization: EGLE
Section: 9.2.2 **Page #: 9 - 2** **Lines #: All**
Specific Comment #23: EGLE is concerned that situations may arise during residual dredging phases that may mobilize contaminated sediment on to clean backfill if dredging is still occurring upstream of DMUs that are closed out, and backfilling is planned as discussed in this section. Revise this section when discussing backfill to state that "Backfill will be placed in each DMU once post-dredging verification is complete in all upstream DMUs".

Commenting Organization: EGLE
Section: 10.0 **Page #: 1 0 - 1** **Lines #: NA**
Specific Comment #24: The introductory text states that RDWP Appendix D (OM&M Plan) will be updated after completion of remediation in the Remedial Reach. The information provided in Section 10 is not comparable to the requirements laid out in the OM&M Plan. At a minimum, Section 10 should be revised to reference relevant sections of the OM&M Plan that are applicable to the Remedial Reach design.

Commenting Organization: EGLE
Section: Appendix A **Page #: V-201 – V116** **Lines #:**
Specific Comment #25: Sediment Core Information depictions: Sediment cores should clearly provide a depiction of contaminant concentrations and if cores have undefined depth of contamination. EGLE recommends the following color legend to assist with future deliverables including yearly workplans and confirmation sampling maps:

- All cores with less than 1 ppm - Gray
- All cores with concentrations greater than 1 ppm and less than 50 ppm – Black
- All cores with concentrations of 50ppm or greater – Red
- Any core with an undefined depth of contamination – a different symbol/shape with the above color identifiers (e.g., square, triangle, etc.)

Commenting Organization: EGLE
Section: Appendix E **Page #: Figures E-1 through E-6** **Lines #:**
Specific Comment #27: All historical samples are not labeled. Revise the figures to depict all historical samples with labels.

Commenting Organization: EGLE

Section: Appendix G **Page #: Page 2 of 3** **Lines #:**
Specific Comment #28: The duration lines are not displaying on this sheet. Reprint this sheet to display task durations.

Commenting Organization: EGLE
Section: Appendix G **Page #: Page 3 of 3** **Lines #: 99-100**
Specific Comment #29: The duration lag between the start of dredging and the start of backfilling is only 9 days. EGLE notes that sampling, analytical analyses, and agency approval for backfilling will be required to be completed in that time frame and should be appropriately coordinated.